**SUBJECT PLAN (6th Semester)**

**REFRACTORY APPLICATION**

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| **Sl.No** | **TOPIC** | **Reference** | **Assignment** | **Comment/**  **Periods** |
| 1.0 | HEAT TRANSMISSION BY REFRACTORIES. |  |  |  |
| 1.1 | Explain the heat transfer through a porous body. |  |  | Three periods |
| 1.2 | Explain heat loss, heat balance and heat recovery in kiln and furnace. |  |  | Two periods |
| 1.3 | Discuss flow of heat,through walls of furnace under variable conditions. |  |  | Two periods |
| 1.4 | Explain heat conservation in kiln and furnace. |  |  | Two periods |
| 2.0 | FERTILIZER AND PETROCHEMICAL INDUSTRIES.(Explain the following terms and mention the refrectories and used for them. |  |  |  |
| 2.1 | Secondary reformer, primary reformer, heaters. |  |  | Two periods |
| 2.2 | Rotary kiln for calcination of coke. |  |  | One periods |
| 2.3 | Factories for carbon black industry. |  |  | One periods |
| 3.0 | REFRACTORIES IN CEMENT INDUSTRY. |  |  |  |
| 3.1 | Describe rotary kiln and refractories used in different zones in details. |  |  | Three periods |
| 3.2 | Describe vertical shaft for mini cement plant. |  |  | Two periods |
| 3.3 | Describe refractories used in vertical shaft kiln. |  |  | One periods |
| 3.4 | Various shapes of refractories for rotary cement kiln construction. |  |  | Two periods |
| 4.0 | REFRACTORIES IN POWER PLANTS.(describe the requirement of refractories of the following in brief) |  |  |  |
| 4.1 | Thermal power plant. |  |  | Two periods |
| 4.2 | Nuclear power plant. |  |  | Two periods |
| 5.0 | REFRACTORIES FOR GLASS INDUSTRY. |  |  |  |
| 5.1 | Various types of furnace used in glass melting. |  |  | Two periods |
| 5.2 | Glass tank furnace refractories and their properties. |  |  | Two periods |
| 5.3 | Refractories used in various section of Glass tank with justification. |  |  | Two periods |
| 5.4 | Refractories is used in regenerator in glass tank furnace and their properties. |  |  | Two periods |
| 6.0 | REFRACTORIES FOR CERAMIC KILN. |  |  |  |
| 6.1 | Refractories for downdraft kiln construction. |  |  | Two periods |
| 6.2 | Refractories for tunnel kiln in construction. |  |  | Two periods |
| 6.3 | Refractories for shuttle kiln. |  |  | One period |
| 6.4 | Refractories for Roller hearth klin. |  |  | One period |
| 6.5 | Kiln furnace and their properties. |  |  | Two periods |
| 6.6 | Refractories for energy conservation in kilns. |  |  | Two periods |
| 7.0 | REPAIRING AND MAINTENANCE OF FURNACES. |  |  |  |
| 7.1 | Blast furnace. |  |  | Two periods |
| 7.2 | BOF and EAF. |  |  | Two periods |
| 7.3 | Ceramic kilns and furnace |  |  | Two periods |
| 7.4 | Hot repairing of Steel making furnace. |  |  | Two periods |
| 7.5 | Hot repairing of Coke oven. |  |  | One period |